

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

JONES, Graham, Henry
Graham Jones & Company
77 Beaconsfield Road
Blackheath
London SE3 7LG
GRANDE BRETAGNE

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year)

30.11.2004

Applicant's or agent's file reference
Jg-2910-PCT

IMPORTANT NOTIFICATION

International application No.
PCT/GB 03/04523

International filing date (day/month/year)
20.10.2003

Priority date (day/month/year)
23.10.2002

Applicant
PLASMA ANTENNAS LIMITED ET AL.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Weman, E

Tel. +49 89 2399-7961



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference Jg-2910-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/04523	International filing date (<i>day/month/year</i>) 20.10.2003	Priority date (<i>day/month/year</i>) 23.10.2002
International Patent Classification (IPC) or both national classification and IPC H01P5/04		
Applicant PLASMA ANTENNAS LIMITED ET AL.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 27.04.2004	Date of completion of this report 30.11.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer von Walter, S-U Telephone No. +49 89 2399-8255 <div style="text-align: right;">  </div>

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/04523

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-14 as originally filed

Claims, Numbers

1-10 received on 24.05.2004 with letter of 21.05.2004

Drawings, Sheets

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/04523**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	4,8-10
	No: Claims	1-3,5-7
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

1. Section V:

In this report, reference is made to the following documents:

D1= DE-A-3 608 451

D2= US-A-3 949 328 (both documents are not cited in the International Search Report)

2. The subject-matter of claim 1 is not new (Article 33 (2) PCT).

D1 discloses an electromagnetic switch including a guiding medium and switch means for controlling propagation within the guiding medium (D1, column 1, line 68 - column 2, line 4, D1, Fig., D, H).

The guiding medium comprises a substantially parallel plate structure (D1, Fig., H, rectangular waveguide).

The switch means comprises an array of electromechanical switch elements positioned to allow selective reflection and absorption of an electromagnetic signal in controlled directions (D1, column 2, lines 4-31, D1, Fig., A, D, K, S, R, W; disclosed is a "Dämpfungsglied" providing a "Durchlaßdämpfung" and a "Reflexionsdämpfung").

Hence, D1 discloses a switch having all the features of present claim 1.

3. Claims 2, 3 and 5-7 do not add any additional features which go beyond the disclosure of D1 (Article 33 (2) PCT). As to

a. claims 2 and 3, D1 discloses a planar waveguide (cf. D1, Fig., H); and

b. claims 5-7, vaporized mylar elements D, moved as shown in D1, control attenuation and reflection (D1, column 2, lines 4-31).

4. Insertion of said electromechanical switch elements into other guiding mediums known per se or movement of said elements controlled by associated logic means are modifications obvious for the skilled person. The subject-matter of claims 4 and 8 does not involve an inventive step (Article 33 (3) PCT). Further, HF systems

including such a switch lack inventive step (claims 9 and 10).

5. Remarks on form and contents:

- a. To meet the requirements of Rule 6.3(b) PCT, the independent claims should be properly cast in the two part form, with those features which are part of the prior art (see D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and the subject-matter, for which protection is sought, being placed in the characterising portion (Rule 6.3(b)(ii) PCT).
- b. Reference numerals are not incorporated in the claims. The technical features of the claims would be rendered more intelligible by relating these features to the corresponding features of the drawings (Rule 6.2(b) PCT). This applies to both the preamble and characterising portion.



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 01 DEC 2004

PCT

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<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 2 sheets.</p>			
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Date of submission of the demand 27.04.2004		Date of completion of this report 30.11.2004	
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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/04523**

I. Basis of the report

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Drawings, Sheets

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/04523**

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6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

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	No: Claims	1-3,5-7
Inventive step (IS)	Yes: Claims	
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Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB 03/04523

1. Section V:

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EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB 03/04523

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5. Remarks on form and contents:

- a. To meet the requirements of Rule 6.3(b) PCT, the independent claims should be properly cast in the two part form, with those features which are part of the prior art (see D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and the subject-matter, for which protection is sought, being placed in the characterising portion (Rule 6.3(b)(ii) PCT).
- b. Reference numerals are not incorporated in the claims. The technical features of the claims would be rendered more intelligible by relating these features to the corresponding features of the drawings (Rule 6.2(b) PCT). This applies to both the preamble and characterising portion.

CLAIMS

1. An electromagnetic switch comprising a guiding medium and switch means for controlling propagation within the guiding medium, characterised in that the guiding medium comprises a substantially parallel plate structure, and the switch means comprises an array of electromechanical switch elements positioned to allow selective reflection and absorption of an electromagnetic signal in controlled directions.
2. An electromagnetic switch according to claim 1 in which the guiding medium is a planar guiding medium.
3. An electromagnetic switch according to claim 1 or claim 2 in which the guiding medium is a waveguide.
4. An electromagnetic switch according to claim 1 or claim 2 in which the guiding medium is made of a semi-conductor material.
5. An electromagnetic switch according to any one of the preceding claims in which the electromechanical switch elements are activated by displacement of elements of desired conductivity, with the displacement being electrostatic displacement, electric field displacement, magnetic field displacement, or thermal displacement.

6. An electromagnetic switch according to any one of the preceding claims in which the elements are in the form of polymers, powders or liquid suspensions.

7. An electromagnetic switch according to any one of the preceding claims in which the parallel plate structure is a microwave parallel plate structure; and including at least one element of controllable reflectivity that may be used to affect the spatial distribution of the electromagnetic energy by absorption of energy.

8. An electromagnetic switch according to any one of the preceding claims in which the electromechanical switch elements are controllable through associated logic devices.

9. A miniaturised active electromagnetic antenna including at least one electromagnetic switch according to any one of the preceding claims.

10. An active electromagnetic delay line including at least one electromagnetic switch according to any one of claims 1 – 8.